

Patent Claims

1. A method for analysis of a target nucleic acid consisting of repetitive and non repetitive sequences comprising:
 - 5 a) hybridizing the target nucleic acid with at least one polynucleotide hybridization probe comprising a first segment which is complementary to a non repetitive region and a second segment which is complementary to an adjacent repetitive region, said second segment consisting of a defined number of repeats; and
 - 10 b) determining the melting point temperature of the hybrid which has been formed between the target nucleic acid and the at least one hybridization probe, wherein the melting point temperature is correlated with the number of repeats present in the target nucleic acid.
- 15 2. A method for analysis of a target nucleic acid in a sample said target nucleic acid consisting of repetitive and non repetitive sequences comprising:
 - 20 a) hybridizing the target nucleic acid in the sample with at least one polynucleotide hybridization probe comprising a first segment which is complementary to a non repetitive region and a second segment which is complementary to an adjacent repetitive region, said second segment consisting of a defined number of repeats;
 - 25 b) hybridizing the same polynucleotide hybridization probe as in step a) with a target nucleic acid in a reference sample;
 - 30 c) determining the melting point temperature of the hybrids which have been formed between the target nucleic acid and the at least one hybridization probe in both the sample and the reference sample; and

- d) determining the difference between the two melting point temperatures as a measure for the difference in repeat numbers between the target nucleic acids in the sample and the reference samples.

5 3. The method according to claim 1 or 2, wherein the target nucleic acid is amplified prior to hybridization.

4. The method according to claim 3, wherein the at least one hybridization probe is labeled. ~~_____~~

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5. The method according to claim 4, wherein hybridization is performed with two adjacently hybridizing probes each labeled with a different ~~fluorophore~~^{fluorophore} such that Fluorescence Resonance Energy Transfer can take place, when both probes are hybridized to the target nucleic acid.

~~6. The method according to claim 5, wherein the fluorophore of the probe comprising a non repetitive region and a second segment which is complementary to an adjacent repetitive region is attached at the non-repetitive region of the probe.~~

~~7. A polynucleotide hybridization probe comprising a first segment which is complementary to a non repetitive region and a second segment which is complementary to an adjacent repetitive region, said second part consisting of a defined number of repeats.~~

25 8. A hybridization probe according to claim 7, wherein the number of repeats is identical to the number of repeats in the wild type of the target sequence or identical to the maximum number of repeats occurring at a certain repeat locus.

30 9. A hybridization probe according to claim 8, wherein the non repetitive segment has a length of 3-10 nucleotides.

14 Claim 8 of Cl. 4 wherein the label is a fluorophore.

6. The method according to Claim 5, wherein the flurophore of the probe comprising a first segment which is complementary to a nonrepetitive region and a second segment which is complementary to an adjacent repetitive region is attached at the first segment of the probe.

Add Claim 14

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14.

The method according to Claim 4, wherein the hybridization probe is labeled with a flurophore.